

What is claimed is:

1. A method for executing an operation in a pressure vessel of a nuclear reactor, comprising:
inserting a body of an operation apparatus having a guide at a lower portion into the pressure vessel;
providing an incline of the guide with respect to a vertical axis while inserting the guide into an opening of a pump in the pressure vessel; and
after inserting the guide, inserting at least a portion of the body into an interior of the pump.
2. A method for executing an operation in a pressure vessel of a nuclear reactor according to claim 1 wherein,
providing an incline of the guide includes adjusting an angle of incline of the guide to an appropriate angle.
3. A method for executing an operation in a pressure vessel of a nuclear reactor according to claim 1 further comprising:
after inserting at least a portion of the body, adjusting an angle of the guide;
and
after adjusting an angle of the guide, performing an operation with a tool at a lower portion of the body.
4. A method for executing an operation in a pressure vessel of a nuclear reactor according to claim 1 further comprising:
after inserting at least a portion of the body, adjusting an angle of the guide;
and
after adjusting an angle of the guide, performing an operation with guide as a tool of the operation.
5. A method for executing an operation in a pressure vessel of a nuclear reactor according to claim 1 further comprising:
after inserting at least a portion of the body, pivoting a tool at a lower portion of the body about the vertical axis; and

- after pivoting a tool, performing an operation with the tool.
6. A method for executing an operation in a pressure vessel of a nuclear reactor according to claim 1 further comprising:
- after inserting at least a portion of the body, adjusting an angle of a tool at a lower portion of the body with respect to the vertical axis;
- after adjusting an angle of a tool, performing an operation with the tool.
7. A method for an execution of an operation in a pressure vessel of a nuclear reactor according to claim 1 further comprising:
- permitting the force of gravity on the guide to draw the body into the interior of the pump.
8. A method for executing an operation in a pressure vessel of a nuclear reactor according to claim 1 further comprising:
- after inserting at least a portion of the body, extending a first plurality supports attached to the body; and
- stabilizing the first plurality of supports against a first plurality of interior surfaces of the pump.
9. A method for executing an operation in a pressure vessel of a nuclear reactor according to claim 7 further comprising:
- after inserting at least a portion of the body, extending a second plurality of supports attached to the body; and
- stabilizing the second plurality of supports against a second plurality of interior surfaces of the pump below the first plurality of interior surfaces.
10. A method for executing an operation in a pressure vessel of a nuclear reactor according to claim 1 further comprising:
- after inserting at least a portion of the body, restoring the guide to an original position with respect to the body.
11. An apparatus for executing an operation in a vessel of a nuclear reactor, comprising:
- a body capable of being suspended and lowered into the vessel;
- a tool attached to the body for at least one of repairing and inspecting an interior of a pump in the vessel;

a guide supported at a lower portion of the body, the guide having an inclined surface with respect to a vertical axis.

12. An apparatus for executing an operation in a vessel of nuclear reactor according to claim 11,

wherein the guide includes at least one of a guide rod and a guide surface inclined at an appropriate angle with respect to a vertical axis.

13. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 11,

wherein the guide is freely supported at the lower portion of the body and inclined at an appropriate angle with respect to a vertical axis due to gravitational force.

14. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 11,

wherein the guide is biased to return to an appropriate position with respect to the body.

15. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 11,

wherein an angle between the guide and the body is adjustable.

16. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 11,

wherein the tool commonly serves as the guide.

17. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 11, wherein the body includes:

at least 3 members interconnected by joints, at least one of the joints being at least one of a rotational joint and a bending joint; and

a plurality of extendable supports capable of stabilizing the body against a first plurality of interior surfaces of the pump.

18. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 11 further comprising:

a first plurality of extendable supports attached to the body and capable of stabilizing the body against a first plurality of interior surfaces of the pump.

19. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 18 further comprising:

a second plurality of extendable supports attached to the body and capable of stabilizing the body against a second plurality of interior surfaces of the pump.

20. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 11 wherein,

the body includes a plurality of joints, the joints including a joint that rotates around the vertical axis and a joint that adjusts an angle with respect to the vertical axis.

21. An apparatus for executing an operation in a pressure vessel of a nuclear reactor, comprising:

a body capable of being suspended and lowered into the vessel;

a tool attached to the body for at least one of repairing and inspecting an interior of a pump in the pressure vessel;

a guide supported at a lower portion of the body, the guide capable of being inclined with respect to a vertical axis when the body is suspended and the guide is inserted into an opening in the pump.

22. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 21,

wherein the guide is freely supported at the lower portion of the body and inclined at an appropriate angle with respect to a vertical axis due to gravitational force.

23. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 21,

wherein the guide is biased to return to an appropriate position with respect to the body.

24. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 21,

wherein an angle between the guide and the body is adjustable.

25. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 21,

wherein the tool commonly serves as the guide.

26. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 21, wherein the body includes:

at least 3 members interconnected by joints, at least one of the joints being at least one of a rotational joint and a bending joint; and

a plurality of extendable supports capable of stabilizing the body against a first plurality of interior surfaces of the pump.

27. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 21 further comprising:

a first plurality of extendable supports attached to the body and capable of stabilizing the body against a first plurality of interior surfaces of the pump.

28. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 27 further comprising:

a second plurality of extendable supports attached to the body and capable of stabilizing the body against a second plurality of interior surfaces of the pump.

29. An apparatus for executing an operation in a vessel of a nuclear reactor according to claim 21 wherein,

the body includes a plurality of joints, the joints including a joint that rotates around the vertical axis and a joint that adjusts an angle with respect to the vertical axis.